

CARBIDE

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END MILLS

RECOMMENDED CUTTING CONDITIONS

EMPFOHLENE SCHNEIDPARAMETER

E2570, E2571, E2510

SERIES

2 FLUTE - SLOTTING

Vc = m/min.

fz = mm/tooth

RPM = rev./min.

FEED = mm/min.

| ISO | VDI 3323 | Material Description               | Ae   | Ap   | Parameter | Diameter (Ø) |       |       |       |       |       |       |       |
|-----|----------|------------------------------------|------|------|-----------|--------------|-------|-------|-------|-------|-------|-------|-------|
|     |          |                                    |      |      |           | 2.0          | 3.0   | 4.0   | 5.0   | 6.0   | 8.0   | 10.0  | 12.0  |
| P   | 1        | Non-alloy steel                    | 1.0D | 0.5D | Vc        | 35           | 35    | 35    | 35    | 35    | 35    | 35    | 35    |
|     |          |                                    |      |      | fz        | 0.004        | 0.008 | 0.013 | 0.02  | 0.025 | 0.036 | 0.045 | 0.061 |
|     |          |                                    |      |      | RPM       | 5570         | 3714  | 2785  | 2228  | 1857  | 1393  | 1114  | 928   |
|     |          |                                    |      |      | FEED      | 45           | 59    | 72    | 89    | 93    | 100   | 100   | 113   |
|     | 2        | Non-alloy steel                    | 1.0D | 0.5D | Vc        | 30           | 30    | 30    | 30    | 30    | 30    | 30    | 30    |
|     |          |                                    |      |      | fz        | 0.003        | 0.007 | 0.013 | 0.019 | 0.025 | 0.041 | 0.05  | 0.063 |
|     |          |                                    |      |      | RPM       | 4775         | 3183  | 2387  | 1910  | 1592  | 1194  | 955   | 796   |
|     |          |                                    |      |      | FEED      | 29           | 45    | 62    | 73    | 80    | 98    | 95    | 100   |
|     | 3-4      | Non-alloy steel                    | 1.0D | 0.5D | Vc        | 25           | 25    | 25    | 25    | 25    | 25    | 25    | 25    |
|     |          |                                    |      |      | fz        | 0.004        | 0.008 | 0.013 | 0.019 | 0.025 | 0.039 | 0.05  | 0.063 |
|     |          |                                    |      |      | RPM       | 3979         | 2653  | 1989  | 1592  | 1326  | 995   | 796   | 663   |
|     |          |                                    |      |      | FEED      | 32           | 42    | 52    | 60    | 66    | 78    | 80    | 84    |
|     | 5        | Non-alloy steel                    | 1.0D | 0.5D | Vc        | 15           | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
|     |          |                                    |      |      | fz        | 0.003        | 0.006 | 0.014 | 0.019 | 0.025 | 0.04  | 0.05  | 0.063 |
|     |          |                                    |      |      | RPM       | 2387         | 1592  | 1194  | 955   | 796   | 597   | 477   | 398   |
|     |          |                                    |      |      | FEED      | 14           | 19    | 33    | 36    | 40    | 48    | 48    | 50    |
|     | 6        | Low alloy steel                    | 1.0D | 0.5D | Vc        | 30           | 30    | 30    | 30    | 30    | 30    | 30    | 30    |
|     |          |                                    |      |      | fz        | 0.003        | 0.007 | 0.013 | 0.019 | 0.025 | 0.041 | 0.05  | 0.063 |
|     |          |                                    |      |      | RPM       | 4775         | 3183  | 2387  | 1910  | 1592  | 1194  | 955   | 796   |
|     |          |                                    |      |      | FEED      | 29           | 45    | 62    | 73    | 80    | 98    | 95    | 100   |
|     | 7        | Low alloy steel                    | 1.0D | 0.5D | Vc        | 25           | 25    | 25    | 25    | 25    | 25    | 25    | 25    |
|     |          |                                    |      |      | fz        | 0.004        | 0.008 | 0.013 | 0.019 | 0.025 | 0.039 | 0.05  | 0.063 |
|     |          |                                    |      |      | RPM       | 3979         | 2653  | 1989  | 1592  | 1326  | 995   | 796   | 663   |
|     |          |                                    |      |      | FEED      | 32           | 42    | 52    | 60    | 66    | 78    | 80    | 84    |
|     | 8-9      | Low alloy steel                    | 1.0D | 0.5D | Vc        | 15           | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
|     |          |                                    |      |      | fz        | 0.003        | 0.006 | 0.014 | 0.019 | 0.025 | 0.04  | 0.05  | 0.063 |
|     |          |                                    |      |      | RPM       | 2387         | 1592  | 1194  | 955   | 796   | 597   | 477   | 398   |
|     |          |                                    |      |      | FEED      | 14           | 19    | 33    | 36    | 40    | 48    | 48    | 50    |
|     | 10       | High alloyed steel, and tool steel | 1.0D | 0.5D | Vc        | 30           | 30    | 30    | 30    | 30    | 30    | 30    | 30    |
|     |          |                                    |      |      | fz        | 0.003        | 0.007 | 0.013 | 0.019 | 0.025 | 0.041 | 0.05  | 0.063 |
|     |          |                                    |      |      | RPM       | 4775         | 3183  | 2387  | 1910  | 1592  | 1194  | 955   | 796   |
|     |          |                                    |      |      | FEED      | 29           | 45    | 62    | 73    | 80    | 98    | 95    | 100   |
|     | 11.1     | High alloyed steel, and tool steel | 1.0D | 0.5D | Vc        | 15           | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
|     |          |                                    |      |      | fz        | 0.003        | 0.006 | 0.014 | 0.019 | 0.025 | 0.04  | 0.05  | 0.063 |
|     |          |                                    |      |      | RPM       | 2387         | 1592  | 1194  | 955   | 796   | 597   | 477   | 398   |
|     |          |                                    |      |      | FEED      | 14           | 19    | 33    | 36    | 40    | 48    | 48    | 50    |
| N   | 21-22    | Aluminum-wrought alloy             | 1.0D | 0.5D | Vc        | 75           | 105   | 100   | 100   | 105   | 100   | 95    | 95    |
|     |          |                                    |      |      | fz        | 0.007        | 0.011 | 0.018 | 0.025 | 0.028 | 0.049 | 0.065 | 0.076 |
|     |          |                                    |      |      | RPM       | 11937        | 11141 | 7958  | 6366  | 5570  | 3979  | 3024  | 2520  |
|     |          |                                    |      |      | FEED      | 167          | 245   | 286   | 318   | 312   | 390   | 393   | 383   |
|     | 23-24    | Aluminum-cast, alloyed             | 1.0D | 0.5D | Vc        | 49           | 68    | 65    | 65    | 68    | 65    | 62    | 62    |
|     |          |                                    |      |      | fz        | 0.007        | 0.011 | 0.018 | 0.025 | 0.028 | 0.049 | 0.065 | 0.076 |
|     |          |                                    |      |      | RPM       | 7799         | 7215  | 5173  | 4138  | 3608  | 2586  | 1974  | 1645  |
|     |          |                                    |      |      | FEED      | 109          | 159   | 186   | 207   | 202   | 253   | 257   | 250   |

※The FEED, in long & extra long types, should be reduced by around 50%

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SERIES

2 FLUTE - SLOTTING

Vc = m/min.

fz = mm/tooth

RPM = rev./min.

FEED = mm/min.

| VDI 3323 | Parameter | 14.0  | 16.0  | 18.0  | 20.0  | 22.0  | 25.0  | 28.0  | 30.0  | 32.0  | 36.0  | 40.0  |
|----------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|          |           | Vc    | 35    | 35    | 35    | 35    | 35    | 35    | 35    | 35    | 35    | 35    |
| 1        | fz        | 0.069 | 0.079 | 0.079 | 0.089 | 0.1   | 0.1   | 0.1   | 0.1   | 0.1   | 0.097 | 0.107 |
|          | RPM       | 796   | 696   | 619   | 557   | 506   | 446   | 398   | 371   | 348   | 309   | 279   |
|          | FEED      | 110   | 110   | 98    | 99    | 101   | 89    | 80    | 74    | 70    | 60    | 60    |
|          | FEED      | 87    | 95    | 95    | 95    | 87    | 76    | 68    | 62    | 58    | 53    | 54    |
| 2        | Vc        | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    |
|          | fz        | 0.064 | 0.08  | 0.09  | 0.1   | 0.1   | 0.1   | 0.1   | 0.097 | 0.098 | 0.1   | 0.114 |
|          | RPM       | 682   | 597   | 531   | 477   | 434   | 382   | 341   | 318   | 298   | 265   | 239   |
|          | FEED      | 87    | 95    | 95    | 95    | 87    | 76    | 68    | 62    | 58    | 53    | 54    |
| 3-4      | Vc        | 25    | 25    | 25    | 25    | 25    | 25    | 25    | 25    | 20    | 25    | 25    |
|          | fz        | 0.071 | 0.078 | 0.088 | 0.088 | 0.1   | 0.097 | 0.098 | 0.1   | 0.102 | 0.1   | 0.111 |
|          | RPM       | 568   | 497   | 442   | 398   | 362   | 318   | 284   | 265   | 199   | 221   | 199   |
|          | FEED      | 81    | 78    | 78    | 70    | 72    | 62    | 56    | 53    | 41    | 44    | 44    |
| 5        | Vc        | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
|          | fz        | 0.071 | 0.08  | 0.09  | 0.102 | 0.102 | 0.097 | 0.094 | 0.094 | 0.107 | 0.104 | 0.114 |
|          | RPM       | 341   | 298   | 265   | 239   | 217   | 191   | 171   | 159   | 149   | 133   | 119   |
|          | FEED      | 48    | 48    | 48    | 49    | 44    | 37    | 32    | 30    | 32    | 28    | 27    |
| 6        | Vc        | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    |
|          | fz        | 0.064 | 0.08  | 0.09  | 0.1   | 0.1   | 0.1   | 0.1   | 0.097 | 0.098 | 0.1   | 0.114 |
|          | RPM       | 682   | 597   | 531   | 477   | 434   | 382   | 341   | 318   | 298   | 265   | 239   |
|          | FEED      | 87    | 95    | 95    | 95    | 87    | 76    | 68    | 62    | 58    | 53    | 54    |
| 7        | Vc        | 25    | 25    | 25    | 25    | 25    | 25    | 25    | 25    | 20    | 25    | 25    |
|          | fz        | 0.071 | 0.078 | 0.088 | 0.088 | 0.1   | 0.097 | 0.098 | 0.1   | 0.102 | 0.1   | 0.111 |
|          | RPM       | 568   | 497   | 442   | 398   | 362   | 318   | 284   | 265   | 199   | 221   | 199   |
|          | FEED      | 81    | 78    | 78    | 70    | 72    | 62    | 56    | 53    | 41    | 44    | 44    |
| 8-9      | Vc        | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
|          | fz        | 0.071 | 0.08  | 0.09  | 0.102 | 0.102 | 0.097 | 0.094 | 0.094 | 0.107 | 0.104 | 0.114 |
|          | RPM       | 341   | 298   | 265   | 239   | 217   | 191   | 171   | 159   | 149   | 133   | 119   |
|          | FEED      | 48    | 48    | 48    | 49    | 44    | 37    | 32    | 30    | 32    | 28    | 27    |
| 10       | Vc        | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    | 30    |
|          | fz        | 0.064 | 0.08  | 0.09  | 0.1   | 0.1   | 0.1   | 0.1   | 0.097 | 0.098 | 0.1   | 0.114 |
|          | RPM       | 682   | 597   | 531   | 477   | 434   | 382   | 341   | 318   | 298   | 265   | 239   |
|          | FEED      | 87    | 95    | 95    | 95    | 87    | 76    | 68    | 62    | 58    | 53    | 54    |
| 11.1     | Vc        | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    | 15    |
|          | fz        | 0.071 | 0.08  | 0.09  | 0.102 | 0.102 | 0.097 | 0.094 | 0.094 | 0.107 | 0.104 | 0.114 |
|          | RPM       | 341   | 298   | 265   | 239   | 217   | 191   | 171   | 159   | 149   | 133   | 119   |
|          | FEED      | 48    | 48    | 48    | 49    | 44    | 37    | 32    | 30    | 32    | 28    | 27    |
| 21 - 22  | Vc        | 95    | 100   | 100   | 100   | 95    | 95    | 95    | 105   | 100   | 100   | 100   |
|          | fz        | 0.08  | 0.088 | 0.097 | 0.1   | 0.107 | 0.117 | 0.123 | 0.123 | 0.12  | 0.122 | 0.125 |
|          | RPM       | 2160  | 1989  | 1768  | 1592  | 1375  | 1210  | 1080  | 1114  | 995   | 884   | 796   |
|          | FEED      | 346   | 350   | 343   | 318   | 294   | 283   | 266   | 274   | 239   | 216   | 199   |
| 23 - 24  | Vc        | 62    | 65    | 65    | 65    | 62    | 62    | 62    | 68    | 65    | 65    | 65    |
|          | fz        | 0.08  | 0.088 | 0.097 | 0.1   | 0.107 | 0.117 | 0.123 | 0.123 | 0.12  | 0.122 | 0.125 |
|          | RPM       | 1410  | 1293  | 1149  | 1035  | 897   | 789   | 705   | 722   | 647   | 575   | 517   |
|          | FEED      | 226   | 228   | 223   | 207   | 192   | 185   | 173   | 177   | 155   | 140   | 129   |

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